

REMARKS

Applicants appreciate the detailed examination evidenced by the Office Action mailed September 21, 2004 (hereinafter "Office Action"), and the indication that Claims 28-33, 35-37 and 43 recite patentable subject matter.

Applicants have submitted proposed replacement drawings sheets that include reference designators to recesses as required in the Office Action and has amended the specification to include these reference designators. Applicants submit that the new figures and amendments to the specification introduce no new matter and overcome the objections to the drawings.

Applicants have addressed the § 112 rejection of Claim 3 by amending Claim 3 to recite "wherein removing at least a portion of the mask to form a recess comprises forming a recess extending partially into the mask," and "wherein forming one of an ohmic contact or a gate contact comprises forming one of an ohmic contact or a gate contact on the mask in the recess." Such recitations are supported by the description of the specification, for example, at page 10, lines 24-27, which describe partial removal of a mask to form a gate contact recess. Applicants submit that this clarifies the nature of the subject matter and overcomes the § 112 rejection of Claim 3.

In response to the claim rejections based on U.S. Patent No. 6,492,669 to Nakayama et al. (hereinafter "Nakayama"), Applicants have amended independent Claims 1 and 42 to recite "removing at least a portion of the mask to form a recess on the first portion of the first cap layer adjacent the second cap layer," and have amended several of the dependent claims to maintain consistency with the amendments to the independent claims. Applicants submit that the amendments further clarify patentable distinctions between the claimed invention and the fabrication process for the device illustrated in the cited FIG. 2A of Nakayama, in which a portion of "a Schottky layer 6 is removed by dry etching" to form openings for formation of contacts.

In particular, the use of dry etching to form contact recesses as described in Nakayama resembles the RIE process described in the Background of the Invention section of the present application, which states at page 2, lines 27-34:

One issue with the fabrication of nitride-based transistors involves the formation of ohmic contacts for such transistors. Conventionally, ohmic contacts have been formed through reactive ion etching (RIE) recesses for the contacts. However, without strict process control practices, RIE in nitride based materials may suffer from uniformity and reproducibility problems. Such problems could result in difficulty in controlling a fabrication process. Ohmic contacts that are formed without RIE have, typically, used high annealing temperatures (*e.g.* 900 °C). Such high annealing temperatures may damage the materials and/or the device.

In contrast, the claims recite operations in which a second nitride-based layer is formed on a first nitride-based layer using a mask that is subsequently removed to form a contact recess. This can eliminate the need to etch the second cap layer to form contacts, which can thus reduce or eliminate the problems described above. Such recitations are neither disclosed nor suggested by Nakayama and, for at least these reasons, Applicants submit that independent Claims 1 and 42 are patentable over Nakayama.

Applicants submit that the dependent claims are patentable at least by virtue of depending from various ones of Claims 1 and 42. Applicants further submit that several of the dependent claims, including Claims 28-33, 35-37 and 43, have independent bases for patentability.

Acknowledgment of the Information Disclosure Statement of August 27, 2004

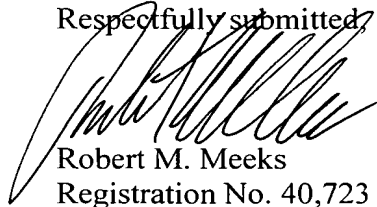
Applicants submitted a Seventh Information Disclosure Statement on August 27, 2004 (copy attached). Applicants request consideration of the references therein and acknowledgment of such consideration by return of a copy of the initialed form PTO-1499.

Conclusion

Applicants submit that the rejections of the claims are overcome for at least the reasons discussed above, and that the claims are, therefore, in condition for allowance, which is respectfully requested. Applicants encourage the Examiner to contact the undersigned by telephone to resolve any remaining issues.

In re: Saxler et al.
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Filed: July 11, 2003
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Respectfully submitted,



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CERTIFICATE OF MAILING

I hereby certify that this correspondence is being deposited with the United States Postal Service as first class mail in an envelope addressed to: Mail Stop Amendment, Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450, on December 16, 2004



Candi L. Riggs

In the Drawings:

The attached drawing sheets include changes to Figures 1E-6 as suggested by the Examiner. The sheets that include Figures 1E-6 replace the original sheets including Figure 1E-6. Applicants have provided annotated drawing sheets and replacement drawing sheets for Figures 1E-6.

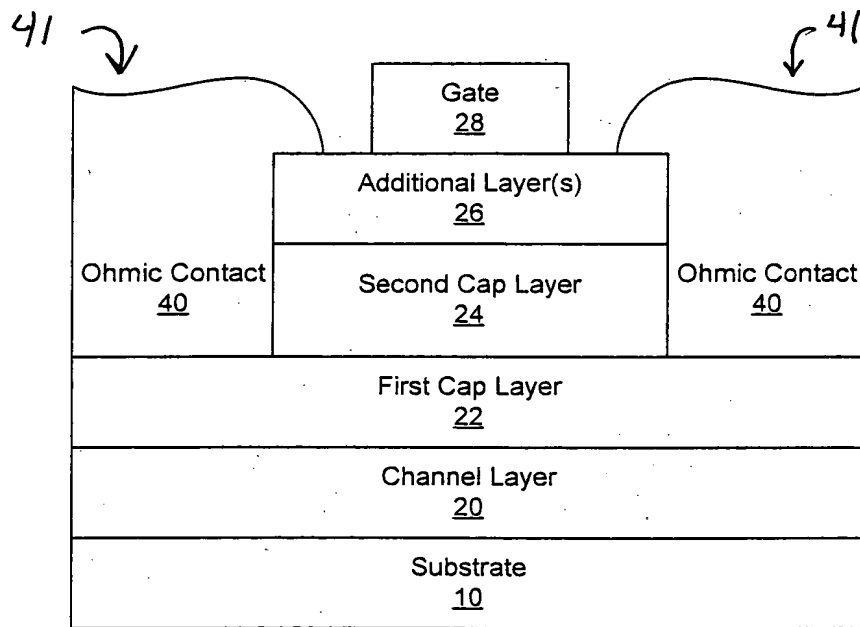


Figure 1E

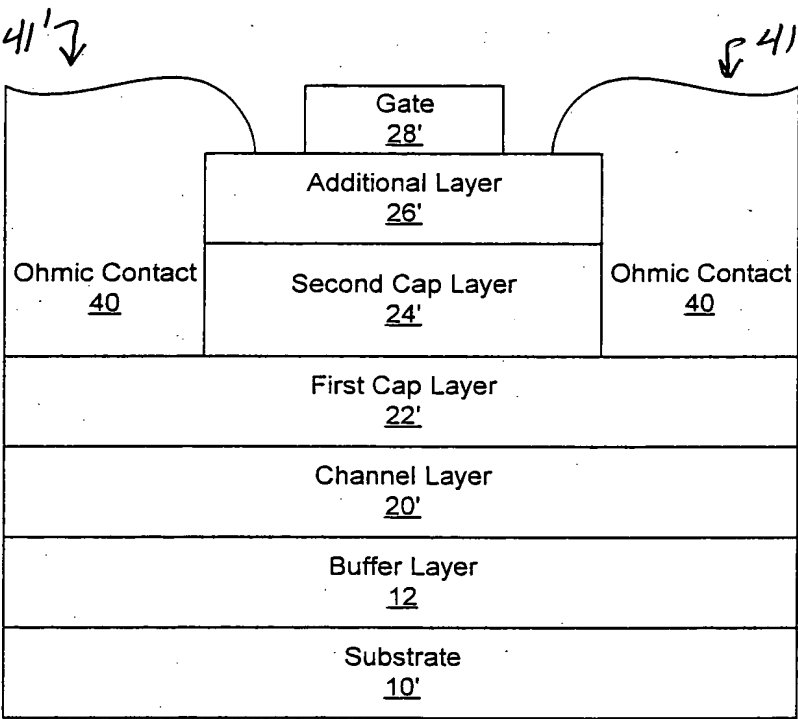


Figure 2

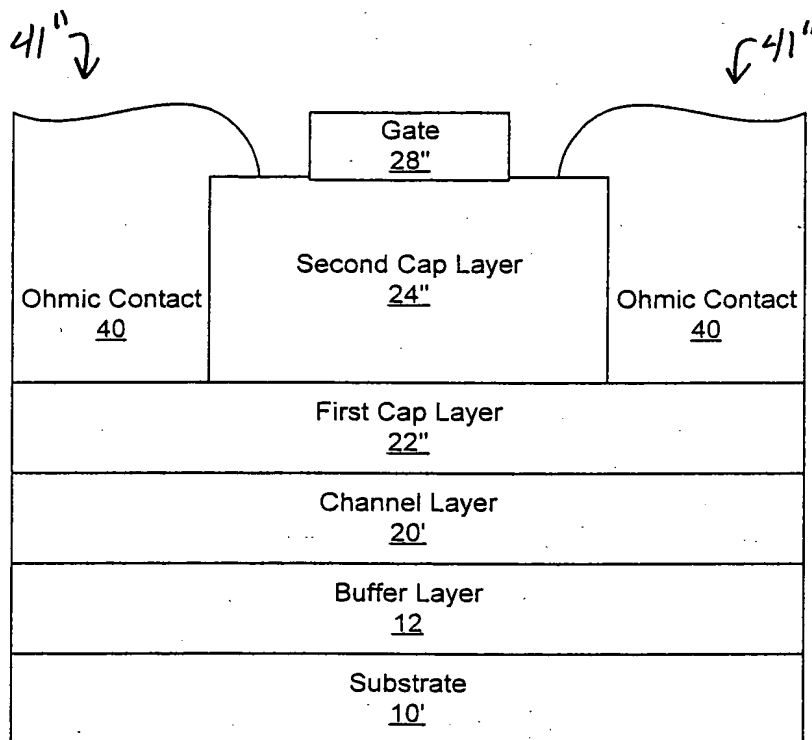


Figure 3

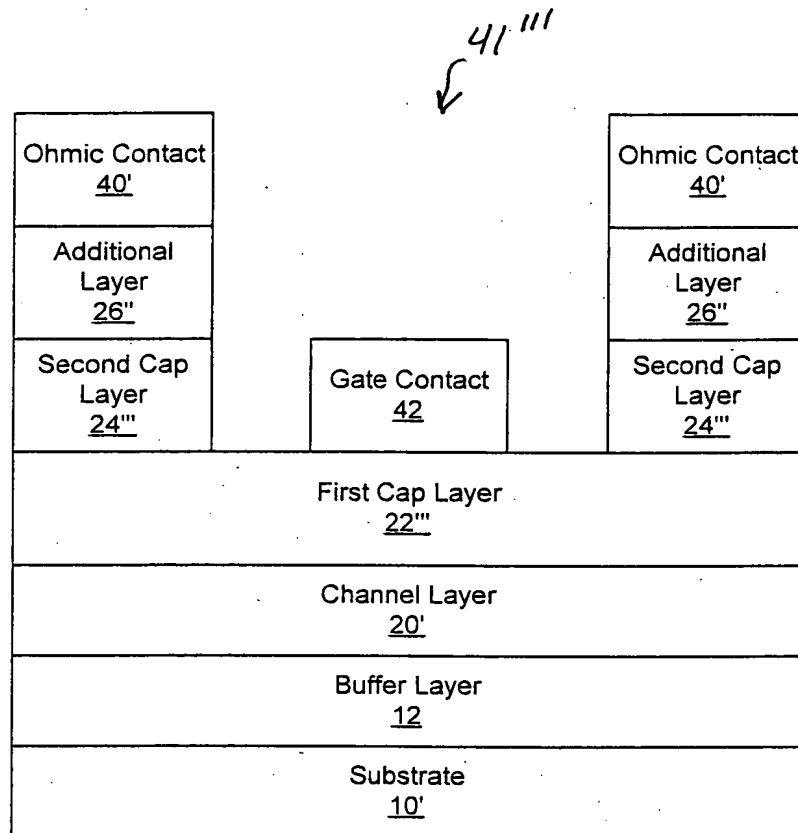


Figure 4

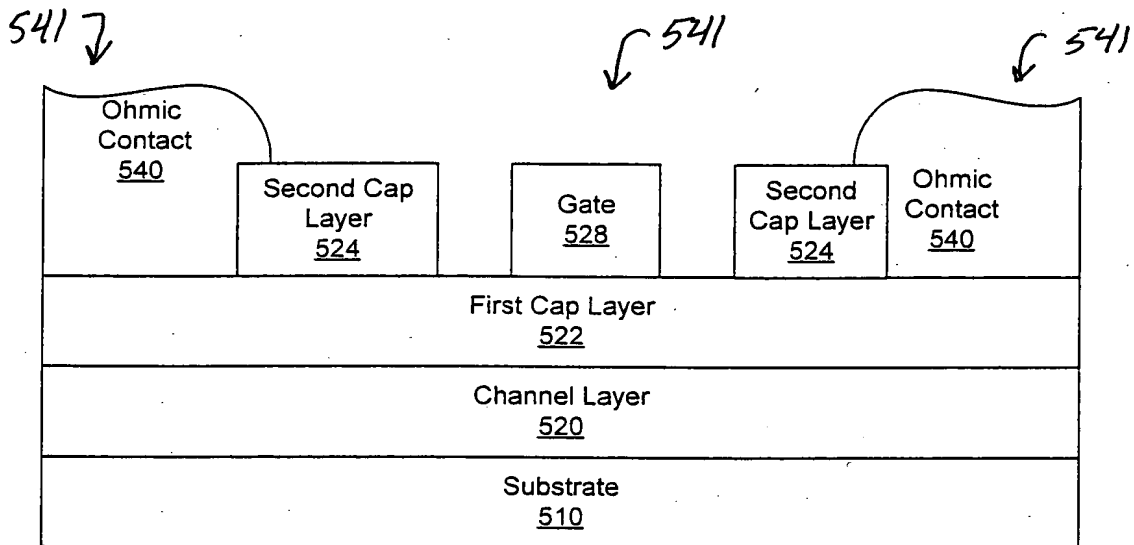


Figure 5

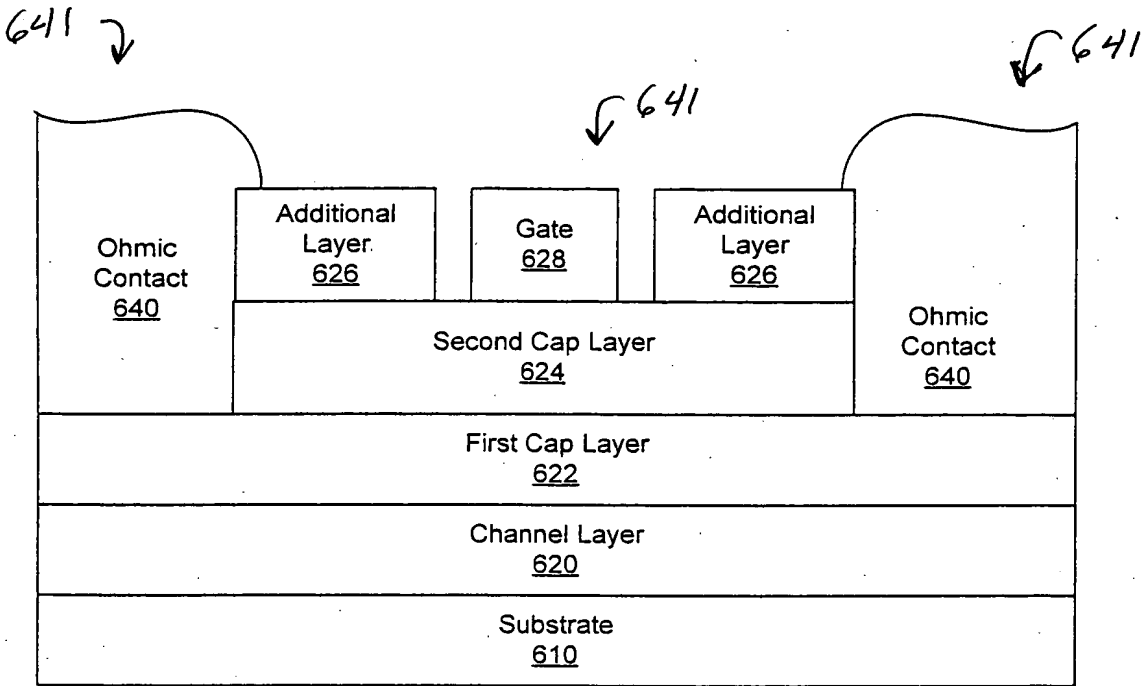


Figure 6